WORK IN PROGRESS

Boxing the QRPLabs QCX

This document talks about boxing the QRPLabs QCX transceiver in the Hammond Diecast Aluminium Stompbox (119 x 94 x 32mm). There is no guarantee with this. These are just my notes giving some idea about how I boxed mine.

The one I bought came from here:

<http://www.ebay.co.uk/itm/Genuine-Hammond-Diecast-Aluminium-Stompbox-Enclosure-Various-Colours/282057062837?ssPageName=STRK%3AMEBIDX%3AIT&var=581003817530&_trksid=p2057872.m2749.l2649>

Required Tools

Drill, manual or electric. It will be easier with an electric drill. A press drill would be handy to ensure holes are cut squarely but it’s not 100% necessary – just a nice to have.

Drill bits.

Needle files.

Scalpel.

Required Materials

Graph paper, 2mm square.

Hammond Box

Nuts & Bolts. I exclusively used M3 nuts and bolts of various lengths. Also included were some locking washers and nylon washers used for packing.

Pritt-Stick.

Don’t forget “Measure twice – cut once”

I used a lot of graph paper doing this. The graph paper is covered in 2mm squares and is temporarily glued onto the box using Pritt-Stick. The paper will eventually be washed off, just immerse the box in water for a few minutes and the paper will float off. You can then wash away any glue deposits with your hands. Don’t be tempted to use anything coarser, it will not be needed. Don’t be tempted to wash the paper off until you are 100% happy that it is complete.

I didn’t do this but on reflection I would have started by gluing a square of graph paper to the inside base of the box and the outside base of the box. Make sure you use plenty of glue and give it 5 minutes or so to dry before proceeding. Use a ruler to measure the required size and aim to have the paper as close to the edge of the box as possible. Centre the PCB in the box as shown in image14 and mark the centre of the four fixing points. It’s easier to do this before further components are mounted on the PCB. If you’re too late for that then just take your time. Use a 1mm to drill the holes and then follow through with a 3mm drill. You should then be able to test mount the board and make sure the holes are aligned correctly. If not, then you man need to use a needle file to enlarge holes as necessary.

Measure and glue graph paper on the four sides of the box. Even if you’re not going to drill through a side of the box cover it up as it will help protect it.

To get a feel for how easy the material is to work I next installed the BNC socket. I didn’t use the one supplied in the kit. To locate is pop the PCB back in the box and visually align the socket with where it goes on the PCB and mark it with a pencil. I mounted my socket centrally – height wise. Then draw out the required hole on more graph paper, cut it out and stick it on top of the paper you already have on that side of the box. When happy drill the centre hole and follow through with a larger drill. I then used the needle files to expand the hole as necessary. I ended up with a small rectangular whole which stops the socket rotating when plugging and unplugging the antenna.

Next, it’s worth tackling the top. The image TopGraphPaper provides most of the required holes. Cut out and glue the paper on the outside of the top. I also put some electrical tape around all four sides to help protect the edges. You now be safe to drill the four holes for the potentiometer, rotary switch and two push switches. Start with a 1mm drill and expand as required. For the potentiometer you will also need to drill a hole for the anti-rotation tab if the potentiometer has one. For the rotary switch you’ll need to drill a small hole – not all the way through – for the small anti-rotation tab.

The tricky bit is the display hole. I started by using a scalpel to scribe the rectangle that we will be cutting out. I did this just to ensure that should the paper some off I would still have some idea of what I needed to remove. Next take a small drill – 3mm – and drill holes around the edge of the rectangle to be removed. Do not drill too close to the edge, make sure the is at least a 1mm gap between the edge of the hole cut and the scribed line. Next take a larger drill and make lots of holes within the rectangle of smaller holes. Next take a needle file and start to remove material from the rectangle. This will take time, don’t rush it. Keep presenting the display to the hole and make sure you end up with a good snug fit.

When you are happy rest the display on top and see how well the dots align for the fixing holes. The changes are they will not, and you’ll need to use a pen to mark them. Drill these holes and temporarily fix the display with some bolts. Make any adjustments required to make it sit flush and level with the top edge.

Next you need to cut the Perspex rectangle to cover the display. Start by covering the Perspex – both sides – with graph paper. Draw on the graph paper a rectangle the size that you want and, by measuring the distance between the fixing holes, the expected place for the fixing bolts. Once you are happy cut it out and drill one holes for one fixing bolt. Then assemble the display and cover in the top of the box and fit with one bolt. You can then align it and mark through the back where the remaining three holes will go. If you’re confident with your measuring you could drill based on your measuring but it’s worth checking that they will be required where you expect them.